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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/065,382 | 10/11/2002 | Yi-Fan Wang | 9745-US-PA | 1020 |

31561 7590 11/20/2003

JIANQ CHYUN INTELLECTUAL PROPERTY OFFICE
7 FLOOR-1, NO. 100
ROOSEVELT ROAD, SECTION 2
TAIPEI, 100
TAIWAN

EXAMINER

GARRETT, DAWN L

| ART UNIT | PAPER NUMBER |
|----------|--------------|
|----------|--------------|

1774

DATE MAILED: 11/20/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/065,382

Applicant(s)

WANG ET AL.

Examiner

Dawn Garrett

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 October 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 October 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 1-16 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for certain specific intermediate layer compounds that have a mobility higher than that of the hole transport layer per instant claims 1 and 9, does not reasonably provide enablement for selecting compounds for the intermediate layer other than the specific compounds listed (for example, triphenylamine derivatives such as tris-4,4'-(2-naphthyl)-triphenylamine (2T-NATA) is specifically discussed). Applicant's recitation of an intermediate layer is broader than the specific amine compounds that are taught as suitable. Applicant has not provided any further direction as to the process of selecting appropriate intermediate layer material relative to any hole transporting material. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make the invention commensurate in scope with these claims.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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4. Claims 1, 2, 5-10, and 13-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aziz et al. (US 6,392,250). Aziz et al. teaches organic light emitting devices having improved performance (see title). Figure 3 shows a device comprising a substrate 132, anode 134, hole transport region 136, mixed light emitting region 138, electron transport region 140, and cathode 142. The anode may be comprised of indium tin oxide per instant claims 5 and 13 (see col. 8, lines 1-2). The electron transport region is comprised of Alq3 per instant claims 7 and 16 (see col. 9, lines 38-45). The multi-layered hole transport region reads upon the instant hole transporting, intermediate, and hole injecting layers of the instant claims (see col. 9, lines 34-36). Preferred hole transporting region materials include copper phthalocyanine per instant claim 8 and claim 14 (see col. 8, lines 28-31), aromatic tertiary amines per instant claims 2 and 10 (see col. 8, lines 33-46), and NPB (a benzidine derivative) per instant claims 6 and 15 (see col. 13, lines 33-36 and col. 9, lines 7-16). Although Aziz et al. fails to describe a specific order for the hole transporting compound layers of the hole transporting region 136, which in combination read upon the instant hole transporting, intermediate, and hole injecting layers, it would have been obvious to have arranged the hole transporting material layers in any order, because one would have expected any order to have functioned similarly as a hole transporting region.

5. Claims 4 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Aziz et al. (US 6,392,250) in view of Raychaudhuri et al. (US 6,551,725). Aziz et al. is relied upon as set forth above. Aziz et al. teaches any suitable metal may comprise the cathode, but fails to teach specifically an LiF/Al alloy as the cathode. Raychaudhuri et

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al. teaches, in analogous art, LiF/Al electron injecting electrodes (cathodes) is efficient material for the function of electron injection (see col. 1, lines 43-44). It would have been obvious to one of ordinary skill in the art to have selected LiF/Al alloy as the metal material for the Aziz cathode, because Raychaudhuri et al. teaches the benefit of efficiency using such an alloy as a cathode in an electroluminescent device.


Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dawn Garrett whose telephone number is (703)305-0788 (after December 29, 2003 the number will be (571) 272-1523). The examiner can normally be reached Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly can be reached at (703)-308-0449. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-2351.


Dawn Garrett
Examiner
Art Unit 1774

D.G.
November 17, 2003